

## CLAIMS

We claim:

1. A smoke detector, comprising:  
a detection device for detecting smoke;  
a sound producing device for producing an alarm;  
a housing containing the sound producing device and the detection device;  
a sound quality enhancement chamber contained in the housing and forming a resonant element, wherein the sound quality enhancement chamber is in communication with the sound producing device for increasing the quality of sounds produced by the sound producing device.
2. The smoke detector of claim 1, wherein the sound quality enhancement chamber is partially formed by an inner surface of the housing and a plate positioned within the housing.
3. The smoke detector of claim 2, wherein the plate is sealed to the inner surface of the housing forming a sealed resonant chamber.
4. The smoke detector of claim 2, wherein a gap exists between an edge of the plate and the inner surface of the housing.

5. The smoke detector of claim 4, wherein the gap extends substantially around all edges of the plate.

6. The smoke detector of claim 1, wherein the sound quality enhancement chamber forming the resonant element has a volume between about seven cubic inches and about twenty cubic inches.

7. The smoke detector of claim 6, wherein the sound quality enhancement chamber has a volume of about thirteen cubic inches.

8. The smoke detector of claim 1, wherein the sound quality enhancement chamber is vented.

9. The smoke detector of claim 1, wherein a front face of the sound producing device is proximate to an inner surface of the sound quality enhancement chamber.

10. The smoke detector of claim 9, wherein the front face of the sound producing device is proximate to a grill forming a portion of the housing.

11. The smoke detector of claim 1, wherein an inner surface of the housing forming at least a portion of the sound quality enhancement chamber is substantially hemispherical.

12. A smoke detector, comprising:  
a detection device for detecting smoke;  
a sound producing device for producing alarms;  
a housing containing the sound producing device and the detection device;  
a sound quality enhancement chamber forming a resonant element that is contained in the housing; and  
wherein the sound producing device is contained substantially in the sound quality enhancement chamber.

13. The smoke detector of claim 12, wherein the sound quality enhancement chamber is partially formed by an inner surface of the housing and a plate positioned within the housing.

14. The smoke detector of claim 13, wherein the plate is sealed to the inner surface of the housing forming a sealed resonant chamber.

15. The smoke detector of claim 13, wherein a gap exists between an edge of the plate and the inner surface of the housing.

16. The smoke detector of claim 15, wherein the gap extends substantially around all edges of the plate.

17. The smoke detector of claim 12, wherein the sound quality enhancement chamber is vented.

18. The smoke detector of claim 12, wherein the sound quality enhancement chamber forming the resonant element has a volume between about seven cubic inches and about twenty cubic inches.

19. The smoke detector of claim 18, wherein the sound quality enhancement chamber has a volume of about thirteen cubic inches.

20. The smoke detector of claim 12, wherein a front face of the sound producing device is proximate to an inner surface of the sound quality enhancement chamber.

21. The smoke detector of claim 20, wherein the front face of the sound producing device is proximate to a grill forming a portion of the housing.

22. The smoke detector of claim 12, wherein an inner surface of the housing forming at least a portion of the sound quality enhancement chamber is substantially hemispherical.

23. A smoke detector, comprising:  
a housing containing a sound producing device and a detection device for detecting smoke;

a recordable playback device for recording at least one alarm message and playing the at least one alarm message in the event the detection device detects the presence of smoke; and

a sound quality enhancement chamber contained in the housing and in communication with the sound producing device forming a resonant element for increasing the quality of sounds produced by the sound producing device.

24. The smoke detector of claim 23, wherein the sound quality enhancement chamber is partially formed by an inner surface of the housing and a plate positioned within the housing.

25. The smoke detector of claim 24, wherein the plate is sealed to the inner surface of the housing forming a sealed resonant chamber.

26. The smoke detector of claim 24, wherein a gap exists between an edge of the plate and the inner surface of the housing.

27. The smoke detector of claim 26, wherein the gap extends substantially around all edges of the plate.

28. The smoke detector of claim 23, wherein the sound quality enhancement chamber is vented.

29. The smoke detector of claim 23, wherein the sound quality enhancement chamber forming the resonant element has a volume between about seven cubic inches and about twenty cubic inches.

30. The smoke detector of claim 29, wherein the sound quality enhancement chamber has a volume of about thirteen cubic inches.

31. The smoke detector of claim 23, wherein a front face of the sound producing device is proximate to an inner surface of the sound quality enhancement chamber.

32. The smoke detector of claim 31, wherein the front face of the sound producing device is proximate to a grill forming a portion of the housing.

33. The smoke detector of claim 23, wherein an inner surface of the housing forming at least a portion of the sound quality enhancement chamber is substantially hemispherical.